DOCUMENT RESUME

ED 455 220 SP 040 147

AUTHOR	Lapsley, Daniel K.; Daytner, Katrina M.
TITLE	Indiana's "Class Size Reduction" Initiative: Teacher Perspectives on Training, Implementation and Pedagogy.
SPONS AGENCY	Indiana State Dept. of Education, Indianapolis.
PUB DATE	2001-04-00
NOTE	26p.; Paper presented at the Annual Meeting of the American Educational Research Association (Seattle, WA, April 10-14, 2001).
PUB TYPE	Reports - Research (143) -- Speeches/Meeting Papers (150)
EDRS PRICE	MF01/PC02 Plus Postage.
DESCRIPTORS	*Class Size; Grouping (Instructional Purposes); *Paraprofessional School Personnel; Primary Education; *Small Classes; Teacher Attitudes; *Teacher Student Ratio; Teaching Methods
IDENTIFIERS	Indiana; Project Primetime

ABSTRACT

Prime Time is a funding mechanism that allows Indiana school corporations to hire instructional assistants for K-3 classrooms with large enrollments. The goal is the establishment of a favorable student-teacher ratio. In the first evaluation of this program, researchers conducted a stratified random cluster survey of 680 K-3 teachers from across Indiana. In addition to soliciting descriptive information about teacher and aide characteristics, the researchers wanted to determine how teachers typically used aides, how often aides were present in eligible classrooms, and whether teachers with aides altered grouping and instructional practices. Results showed that the presence of instructional assistants was associated with certain teacher grouping and instructional practices. Aides were typically present every day in eligible Prime Time classrooms, although they were often shared among classrooms, making them unavailable for the entire instructional day in any given classroom. Teachers indicated that aides required them to greatly alter their teaching strategies in positive ways, and that Prime Time costs were well justified. The researchers conclude that the "Prime Time strategy" of providing teachers with aides may be as promising a way of encouraging pedagogical best practices as reducing class size. (Contains 15 tables.) (SM)

Reproductions supplied by EDRS are the best that can be made
from the original document.

ED 455 220

Indiana's "Class Size Reduction" Initiative: Teacher Perspectives on Training, Implementation and Pedagogy

Daniel K. Lapsley and Katrina M. Daytner

Ball State University

Abstract

Prime Time is a funding mechanism that allows Indiana school corporations to hire instructional assistants for early primary grade (k-3) classrooms that have large enrollments. The goal is not "class size reduction" but rather the establishment of a favorable pupil-teacher ratio. In the first evaluation of this program we conducted a stratified random cluster survey of 680 kindergarten through third-grade teachers from across Indiana. In addition to soliciting descriptive information about teacher and aide characteristics, we also wanted to determine how teachers typically used aides, how often aides were present in eligible classrooms, and whether teachers with aides altered grouping and instructional practices. Our results showed that the presence of instructional assistants was associated with certain teacher grouping and instructional practices. Aides were typically present every day in eligible Prime Time classrooms, although they were often shared among classrooms, making them unavailable for the entire instructional day in any given classroom. Teachers indicated that aides required them to greatly alter their teaching strategy, and that Prime Time costs were well justified. We conclude that the "Prime Time strategy" of providing teachers with aides may be as promising a way to encourage pedagogical best practice as reducing class size. The implications of the present findings for understanding "class size reduction" effects are discussed.

Paper presented at the annual meeting of the American Educational Research Association, April 2001, Seattle.

This project was funded by the Indiana Department of Education. Our thanks to Dwayne James, Jayma Ferguson and Laura Taylor for their help in facilitating this project. *Please address correspondence to Dr. Lapsley at this address: Department of Educational Psychology, Teachers College 526,, Ball State University, Muncie, IN 47306*
Email dklapsley@bsu.edu

SP040147

BEST COPY A

CATIONAL RESOURCES INFORMATION
CENTER (ERIC)
is document has been reproduced as
ceived from the person or organization
ginating it
nor changes have been made to
prove reproduction quality

ints of view or opinions stated in this
cument do not necessarily represent
icial OERI position or policy

PERMISSION TO REPRODUCE AND
DISSEMINATE THIS MATERIAL HAS
BEEN GRANTED BY

D.K. Lapsley

TO THE EDUCATIONAL RESOURCES
INFORMATION CENTER (ERIC)

Introduction

Prime Time is the name of Indiana's initiative to address the problem of large class enrollment in the early primary grades (kindergarten through third-grade). The program is predicated on the assumption that a reduction in pupil-teacher ratios will result in better student outcomes. To that end, and since the phase-in implementation in 1984-85, funding has been provided (approximately $100 million a year) to local school corporations to hire additional teachers or instructional assistants so as to maintain a corporation average of 18 students per teacher in kindergarten and first-grade, and a corporation average of 20 students per teacher in second- and third-grade. Prime Time was one of the first state-wide "class size reduction" initiatives in the nation, and along with Tennessee's Project STAR, was widely considered a national model of innovative educational programming (Pate-Bain & Achilles, 1986).

In the sixteen years since its initial implementation, however, there have been few satisfactory evaluation studies of Prime Time, and none that have been conducted using state-wide representative samples. Indeed, Finn (1998) noted a number of reasons why Prime Time poses special challenges to program evaluation. First, because Prime Time was initially designed as a demonstration project, insufficient attention was paid to the sort of controls that would permit meaningful and informative evaluation. Second, different achievement tests have been used in different schools (although a common state-wide test in now mandated at third-grade). Third, Prime Time interventions may be confounded in many school corporations with other educational programs and initiatives (e.g., Title I). Fourth, insofar as Prime Time attempts to lower pupil-teacher ratios, it is not, strictly speaking, a class-size reduction initiative, and therefore extant evaluations of Prime Time "cannot be interpreted as confirming or refuting a class-size effect" (Finn, 1998, p. 6). Of course, this is only a problem if the efficacy of "class size reduction," *per se*, is at stake, and not for initiatives like Prime Time that attempt to reduce pupil-teacher ratios.

The Indiana Department of Education has recently funded a three-year, multi-component program evaluation study. This study, called Project Prime Time, is designed to provide critical information regarding program implementation and student achievement outcomes. The purpose of this paper is to report on the initial survey findings from Project Prime Time.

VAILABLE

Our focus in this paper is on teacher reports about Prime Time implementation, particularly with respect to staff training and classroom grouping and instructional practices. We were also interested in how teachers utilized instructional assistants, and their attitudes about the feasibility of Prime Time more generally.

These are important questions because the success of "class size reduction" initiatives is presumably linked to mediating mechanisms, such as teacher instructional practices, and not to class size *per se* (Finn & Achilles, 1990; Mitchell & Beach, 1990; Varble, 1990). As one research team from Tennessee's *Project STAR* put it:

> There is a sense in which class size is a psychologically empty concept. We are confident that reducing the number of students in a class does not impact performance directly but instead affects the *processes* that mediate achievement (Finn, Fulton, Zaharias & Nye, 1989, p. 83).

Presumably, reductions in class size should provide an opportunity to alter classroom practices, although some researchers have shown that teachers do not always alter instructional practices in order to capitalize on smaller classes (Robinson, 1990; Kickbusch, 1996).

This was demonstrated in a recent RAND study of California's Class Size Reduction (CSR) initiative. In this study Stasz and Stecher (2000) compared instructional practices in reduced size (average N = 20) and non-reduced sized (average N = 29) third-grade classrooms. They found that the teaching practices evident in both reduced and non-reduced classrooms were "quite similar" (p. 313).

For example, topic coverage in mathematics and language arts was similar in reduced and non-reduced classrooms, as was the total amount of time devoted to instruction on these topics. The amount of homework assigned to students was similar, as was grouping practices and the time spent giving students individual attention. Moreover, Stasz and Stecher (2000) reported that teachers in the reduced and non-reduced classes "did not differ significantly in terms of teacher background, student demographic factors, professional development or instructional support" (p. 318). Differences were evident, however, in three areas. Teachers in reduced size classes reported fewer disciplinary problems, they spent more time discussing

a student's personal problems, and more time providing individual attention to poorer readers.

Note that the critical comparison in the Stasz and Stecher (2000) analysis was of classrooms that differed in class size. However, unlike California's CSR initiative, or Tennessee's Project STAR, the Prime Time program in Indiana is not, strictly speaking, a class size reduction initiative. It cannot, as Finn (1998) noted, provide empirical demonstration of a "class size reduction effect." Rather, Prime Time attempts to reduce pupil-teacher ratio by making monies available to hire instructional assistants in order to reach target ratios in eligible primary K-3 grades. Hence, although the Prime Time approach cannot provide empirical demonstration of a "class size reduction effect," it does, nonetheless, attempt to alter classroom instructional practices by means of lower pupil-teacher ratio made possible by the presence of instructional assistants. In other words, class-size reduction, and lower pupil-teacher ratio, are both attempts to influence the processes that promote sound educational practice. And, to date, the Prime Time strategy of lowering pupil-teacher ratio has been inadequately investigated.

Hence, in the present study we explored variation in instructional practices by teachers in classrooms that vary not by class size , per se, but by the presence of Prime Time assistants (or other aides). Moreover, little is known about the educational background of aides, or how they are typically utilized. Are Prime Time aides used for tutoring or direct instruction, or are their typical duties clerical or non-instructional? Little is known about how often aides are present in classrooms, or whether they are shared among different teachers and classrooms. It is not presently known just how instructional practices vary in Indiana classrooms, and how teacher practices are influenced by the presence of a Prime Time aide. Moreover, although most of our efforts were devoted to exploring the background and influence of Prime Time assistants, we were also interested in the number of other aides that are available to Indiana classrooms, funded by programs other than Prime Time (e.g., Title I). Certainly the presence of aides hired through other funding mechanisms, in addition to Prime Time aides, would potentially influence instructional patterns, groupings, and practices within a classroom.

The present study, then, addresses the following questions, using a representative sample of teachers in the state of Indiana:

First, do teachers with Prime Time aides differ from teachers without aides with respect to training, teaching experience and professional development?

Second, what is the educational background, training, and experience of Prime Time aides?

Third, what is the extent of participation of Prime Time aides in classroom instructional activities? What are their typical duties? How often are they present in the classroom during the instructional day?

Fourth, does the presence of instructional assistants in the classroom influence teachers' grouping and instructional practices?

Fifth, what are teacher attitudes towards Prime Time? Do they believe that the monies spent on Prime Time are justified? Should monies be diverted elsewhere?

In addition to these questions we also wanted to determine the pattern of enrollment and average attendance among classrooms with and without aides, and by the total number of aides available to a classroom.

Method

Participants

Schools were selected using a stratified cluster sampling procedure. Three schools were randomly selected from within each demographic strata (urban, rural, suburban, township) in each of nine educational service regions. An extensive "teacher survey" was mailed to every teacher in grades k-3 in the selected schools. The return rate was 60%, yielding 680 respondents, of whom 323 (46%) reported having a Prime Time instructional assistant. Respondents included 206 first-grade teachers (30.2%); 171 second-grade teachers (25.1%); 185 third-grade teachers (27.2%); 111 kindergarten teachers (16.3%), and 7 (1.0%) multi-age teachers. Each demographic strata was about equally represented, including 138 (20.3%) urban teachers, 165 (24.2%) suburban teachers, 186 (27.3%) township teachers, and 186 (27.3%) rural teachers. Five teachers could not be coded

Instrument: The Prime Time Teacher Survey

The Prime Time Teacher Survey consisted of four sections. In the first section we solicited information regarding teacher education, teaching experience, and professional development activities, as well as standard demographic information.

In the second section we asked teachers to describe their classroom in terms of enrollment, average daily attendance, and the number of inclusion and limited English proficiency students. Teachers also indicated whether a Prime Time or other aide was assigned to their class, and for how long. If teachers reported having a Prime Time aide they also were asked to rank order "the primary duties and responsibilities of the Prime Time instructional assistant." These duties included: tutor individual students, participate in small group instruction, serve as a liaison with parents, maintain bulletin boards and classroom decoration, monitor learning needs of individual students, do routine clerical duties (e.g., check attendance, pass out papers, filing, photocopying), direct instruction of particular subjects, discipline students, collect or organize instructional materials, maintain grade book, organize recreational activities, escort children, and other. Teachers were instructed not to rank duties that were not ordinarily performed by the instructional assistant. We also asked teachers to report on the educational level of the Prime Time instructional assistant, and the extent of previous teaching experience.

The third section was adapted from Rand Corporation surveys used in the evaluation of California's CSR initiative. These questions required teachers to report on their instructional activities. Teachers were asked to report, for example, for a typical day, how many minutes are spent teaching to the whole class, to larger groups (five or more students), to smaller groups (two to four students) and to individual students. This question was repeated for the minutes spent teaching language arts, mathematics, science and social studies (although only language arts and mathematics data are reported here).

We also asked teachers to report on the number of minutes "in a typical school day" that are devoted to professional consultation activities, such as discussing discipline issues, student progress, pedagogy and educational issues with peers, professionals, and administrators. A score of 1 was assigned if consultation was less than 15 minutes a day; a score of 2 if

consultation was for 16-30 minutes a day, a score of 3 if consultation was 31-45 minutes a day, a score of 4 if consultation was 46-60 minutes a day, and a score of 5 if over 60 minutes was afforded to professional consultation. This scale was also used for a set of questions that asked teachers to report the number of minutes that are spent on various classroom management activities, such as disciplining students, planning for lessons, setting up the classroom, changing learning centers, doing routine paperwork, reviewing/grading students' work, or planning with instructional assistants.

Similarly, we asked to teachers to report the number of minutes spent on various instructional practices, including using manipulatives, using workbooks, incorporating technology in lessons, using readers, working with individual students, leading class discussion, engaging in student chosen activities, using whole class instruction, using direct instruction, participating in community building or circle activities, and using learning centers or small groups.

We asked teachers to indicate "the degree to which having an instructional assistant in your classroom affects your ability to consult with other professionals," on a five-step Likert continuum ranging from "much improved" to "much worse." Teachers were also asked to indicate "the degree to which having an instructional assistant in your classroom affects the amount of time you spend talking to parents." using the same five-step Likert scale.

We asked teachers to indicate, on a five-step Likert scale (from "much improved" to "much worse") the degree to which having an instructional assistant affects classroom management. And teachers were asked to indicate "the degree to which having an instructional assistant in your classroom affects your instructional practices," on a scale ranging from "much improved" to "much worse." We also explicitly asked teachers if having an instructional assistant changes the way they teach. Responses were indicated on a four-step continuum ranging from "no change" to " a great deal of change."

Finally, the fourth section of the Prime Time Teacher Survey consisted of two sections. The first section asked teachers to indicate on a five-step Likert scale (from yes, definitely to definitely not) if they "believe that the educational benefits of Prime Time justify the costs." They were also asked if they thought the money allocated to Prime Time could be better

spent and how. The second section consisted of several open-ended questions about Prime Time. This narrative data is not reported here.

Results

Enrollment by Aide Type. Table 1 reports the enrollment and average attendance of classrooms that have no aide, only a Prime Time aide, only a non-Prime Time aide, and both Prime Time and non-Prime Time aides. As expected, classrooms that have no aide have the lowest enrollment (M = 20.18 pupils) and average attendance (M = 19.63 pupils). The highest enrollments (M = 25.16) and average attendance (M = 24.35) are reported in classrooms that have both types of assistants (Prime Time and non-Prime Time), although enrollments and average attendance are also quite high in classrooms with only a Prime Time assistant (M = 23.66 and M = 22.91, respectively).

A one-factor (Aide Type: no aides, only a Prime Time aide, only non-Prime Time aides, both types of aides) ANOVA was calculated to determine if these enrollment differences among classrooms with different types of aides were statistically significant. A significant difference was observed, $F(3, 668) = 24.17$, $p < .000$. Post-hoc analysis using Tukey's Honestly Significant Difference (HSD) procedure showed that classrooms with only a Prime Time aide were significantly larger than classrooms with no aides and larger than classrooms with a non-Prime Time aide. Classrooms with both types of aides were also significantly larger than classrooms with no aides and classrooms with a non-Prime Time aide. There was no difference in enrolled class size between classrooms with only a Prime Time aide and classrooms that have both types of aides. Moreover, there was no difference between enrollments in classrooms with no aides and classrooms with only a non-Prime Time aide. The same pattern was evident when this analysis was repeated for average attendance. Table 1 reports the significant mean contrasts for both analyses. It is clear, then, that the presence of Prime Time aides is associated with larger enrollment and average attendance, as opposed to the presence of non-Prime Time aides.

Enrollment by Number of Aides. The previous analyses examined enrollment and attendance differences among classrooms that had different types of aides (no aides, only a Prime Time aide, only non-Prime Time aides, both types of aides). We also calculated the number of aides that are typically assigned to a classroom, regardless of funding source. Table 2

reports the mean enrollment and attendance of pupils by number of assistants in the classroom (no assistants, one, two, and three assistants, and more than three assistants). As in the previous analysis, classrooms with no assistants has the lowest enrollment and average attendance (M = 20.18 and M = 19.63, respectively). Classrooms with two or more assistants tended to have larger enrollments and larger average attendance. A one-factor (Aide Number: no assistants, one, two, and three assistants, and more than three assistants) ANOVA indicated a significant difference in enrollment among classrooms with different numbers of aides, $F(4, 657) = 9.10$, $p < .000$. Post-hoc analyses (HSD) indicated that classrooms with one or more aides had significantly higher enrollment than did classrooms with no aides. But enrollments were not significantly different among classrooms with one or more aides. An identical pattern was evident in the analysis of average attendance. Table 2 reports the significant mean contrasts for both analyses.

Characteristics of Prime Time Teachers. Table 3 reports a comparison of teachers with and without Prime Time aides on background characteristics regarding teaching experience, professional development activities, and training. As is evident, teachers with Prime Time assistants are not different from teachers without Prime Time assistants on any of the variables. The Stasz and Stecher (2000) study found a slight tendency for teachers in reduced size classes to hold a masters degree, compared to teachers in non-reduced size classes. However, this was not the case for this study. There were no apparent training or experience advantages for teachers with Prime Time assistants in the present study.

Educational Background of Instructional Assistants. We next wanted to know the educational background and experience of Prime Time instructional assistants. Table 4 reports a summary of the data on this question. Most instructional aides (41.2%) hold only the high school diploma. Approximately one aide in five (21.6%) holds a university degree while another 19.5% have taken some undergraduate coursework. Moreover, only 7.7% of aides hold a current teacher license. Most aides (96.6%) are not former or retired teachers, although 10.5% have prior day care teaching experience and 5.9% have taught pre-school. Only 6.7% of teachers reported that they were unaware or did not know the educational background, experiences or licences held by the Prime Time aides assigned to them.

Extent of Participation and Typical Duties. Most teachers (70.6%) who utilize a Prime Time assistant also reported sharing the aide with other classes. The mean time that an aide spent in a classroom was 3.4 hours per day, although a quarter of classrooms had an aide for 80 minutes or less. Hence it is rare for an aide to be assigned to a given class for the entire instructional day. That said, 78.9% of teachers reported having an aide every day of the week for at least part of the school day.

Table 5 reports the percentage rankings of the typical duties of Prime Time assistants. Clearly, teachers consider "tutoring individual children" and "participation in small group activities" to be highly ranked responsibilities of aides, although "routine clerical duties" are also ranked as relatively important duties. In contrast, aides are rarely called upon to discipline students, serve as liaison to parents, organize classroom recreation, or maintain classroom decoration.

Instructional Grouping. How does the presence of an instructional assistant influence the instructional grouping practices of teachers? To address this question we first compared classrooms with and without instructional assistants on the amount of time spent in whole class instruction and instruction in smaller groupings of students (five or more, two to four, and individual). A one-factor (Aide Type) MANOVA was calculated on minutes teaching whole class, smaller groups of five or more pupils, smaller groups of two to four pupils, and individual instruction for all subjects.

Regarding instructional groupings for all subjects, a significant multivariate effect was evident (Pillai trace = .047, $F = 2.5$, $p = .003$). Univariate analysis revealed significant Aide Type differences in whole class instruction, $F(3, 639) = 2.79$, $p = .039$) and instruction in groups of five or more pupils, $F(3, 639) = 5.18$, $p = .002$). Post-hoc contrasts (Tukey's HSD procedure) indicated that whole class instruction took place more often in classrooms without instructional aides than in classrooms with both Prime Time and non-Prime Time aides. In addition, classrooms with both kinds of aides (Prime Time and non-Prime Time) more often used instructional groupings of five or more pupils than did classrooms with no aides. Means and standard deviations are reported in Table 6. Hence this data shows that the presence of instructional aides is associated with less whole class instruction, and more use of classroom grouping structures, in comparison to classrooms with no aides.

Another way to address this question is examine classroom grouping practices not by "type" of aide, as in the previous analysis, but by the number of aides available to a classroom. A one-factor (Aide Number) MANOVA was calculated on minutes teaching whole class, smaller groups of five or more pupils, smaller groups of two to four pupils, and individuals. The multivariate main effect was statistically significant (Pillai trace = .042, F = 1.66, p = .048). Univariate analysis revealed significant effects for whole class instruction, F(4, 630) = 2.69, p = .030; and for teaching in groups of five or more pupils, F(4, 630) = 3.51, p = .008. Post-hoc comparisons (HSD) showed that classrooms with two assistants used less whole class instruction than did classrooms with no assistants, and more groupings of five or more pupils than classrooms with no assistants. Means and standard deviations for these comparisons are reported in Table 7.

We next conducted similar analyses for instruction of specific domains (language arts and mathematics). A significant multivariate effect was evident with respect to instructional groupings for teaching language arts (Pillai trace = .043, F = 2.33, p = .006). Univariate analyses revealed a significant Aide Type difference for instruction in groups of five or more pupils, F (3, 647) = 3.87, p = .009. Post-hoc contrasts (Tukey's HSD) indicated that classrooms with both kinds of aides are more likely to use instructional groupings of five or more pupils in language arts than classrooms with no aides. Classrooms with both Prime Time and non-Prime Time aides spend more time using instructional groupings of five or more pupils than did classrooms with just a Prime Time aide (although this contrast is marginally significant, $p < .07$). Table 6 reports the means and standard deviations for these contrasts. Hence, as in the previous analysis, the presence of instructional aides is associated with more use of classroom grouping structures in language arts than classrooms without an aide (or classrooms with just a single Prime Time aide).

A significant multivariate effect was evident with respect to instructional groupings for teaching mathematics (Pillai trace = .037, F = 1.96, p = .025). Univariate analyses revealed a significant Aide Type difference for instruction in groups of five or more pupils, F (3, 637) = 3.40, p = .017, and for instruction in groups of two to four pupils, F (3, 637) = 2.74, p = .043. Post-hoc analysis (Tukey's HSD) showed that teachers with both Prime Time and non-Prime Time aides spent more time in groupings of five or more pupils in mathematics than did teachers with no aides. There was also a tendency for teachers with a non-Prime Time aide to use

instructional groupings of five or more pupils than teachers with no aides ($p < .06$). Teachers with a non-Prime Time aide tended to use instructional groups of two to four pupils more than teachers with just a Prime Time assistant ($p < .07$), although this contrast is only of marginal statistical significance. Means and standard deviations are reported in Table 6.

Instructional Practices. We also compared classrooms with and without aides on a range of specific instructional practices. Three sets of instructional variables were analyzed using MANOVA. The first set was the amount of time that teachers reported being involved with student discipline, planning for lessons, setting up the classroom, working on learning centers, doing routine paperwork, and grading student work. A linear combination of these variables showed statistically significant differences among the four aide types (Pillai trace = .061, $F = 2.13$, $p = .004$). Univariate analyses indicated significant differences for discipline, $F(3, 620) = 2.62$, $p = .05$; for planning for lessons, $F(3, 620) = 4.12$, $p = .007$; and for grading student work, $F(3, 620) = 4.29$, $p = .005$. Post-hoc analysis (Tukey's HSD) showed that teachers with a Prime Time aide spent more time ($p < .07$) engaged in student discipline than did teachers who had both Prime Time and non-Prime Time aides (or, alternatively, teachers with multiple aides spent less time disciplining students than did teachers with just one aide). Teachers who had a Prime Time aide, and teachers who had a non-Prime Time aide, spent more time planning than did teachers who had both types of aides in their classroom. Similarly, teachers with both types of aides reported spending significantly less time grading student work than did teachers with no aides or just a Prime Time aide. Means and standard deviations for these contrasts are reported in Table 8. This data shows, then, that teachers with both kinds of aides (Prime Time and non-Prime Time) spent less time disciplining students and less time grading student work than teachers with just one aide (either Prime Time or non-Prime Time). Moreover teachers with Prime Time aides, and teachers with non-Prime Time aides, spent more time planning for lessons than did teachers with both kinds of aides.

We also wanted to know how much planning teachers did with their instructional assistants. Pairwise contrasts showed that teachers with a Prime Time aide engaged in significantly more planning with their aide ($M = 1.53$, $SD = .06$) than did teachers with a non-Prime Time aide ($M = 1.12$, $SD = .06$, $p < .000$). And teachers with both kinds of aides (Prime Time and non-Prime Time) spent more time planning with assistants ($M = 1.51$, $SD = .044$) than did teachers with a non-Prime Time aide ($M = 1.19$, $SD = .045$). Hence,

teacher planning appears to be associated with having a Prime Time aide, and having both kinds of aides.

A second MANOVA explored differences among class types for a linear combination of five instructional practices: using manipulatives, workbooks, technology, readers, and circle activities. A significant multivariate effect was evident (Pillai trace = .052, $p = .008$). Univariate analysis showed significant Aide Type differences in time spent using manipulatives, $F(3, 609) = 3.17$, $p = .024$; workbooks, $F(3, 609) = 2.87$, $p = .036$; and educational technology, $F(3, 609) = 3.09$, $p = .027$. Post-hoc contrasts (Tukey's HSD) showed that manipulatives were used more frequently in classes that had both types of aides (vs no aides). Educational technology was used more frequently when a classroom had a non-Prime Time aide (vs no aide). Workbooks were used significantly more often in classrooms with a Prime Time aide than a non-Prime Time aide ($p < .06$), and classrooms without an aide tended to use workbooks more often than did classrooms with an aide ($p < .09$), although the latter contrasts are of marginal statistical significance. Means and standard deviations for these contrasts are reported in Table 8.

A third MANOVA explored differences among aide types for a linear combination of four instructional strategies: whole class instruction, integrated instruction, direct instruction and small group/learning center instruction. A significant multivariate effect was evident (Pillai trace = .039, $F = 2.05$, $p = .017$). Univariate analysis revealed significant Aide Type differences only for the use of small groups/learning centers. Post-hoc analysis (Tukey's HSD) showed that teachers in classrooms with both kinds of aides engaged in the use of more small group/learning centers than did teachers with no aide, or in classrooms that had just a Prime Time aide. Moreover, teachers who had a non-Prime Time aide also engaged in the use of more small group/learning center instruction than did teachers with no aides and teachers with a Prime Time aide only. Means and standard deviations for these contrasts are reported in Table 8.

Teacher Attitudes. A vast majority of teachers with Prime Time aides (85% - 87%) reported that classroom management and instruction was "much improved" or "somewhat improved" because of the presence of instructional assistants. Moreover, nearly 70% of teachers reported that having an aide induced a moderate or a great deal of change in instructional practices.

We also asked teachers whether Prime Time monies could be better spent, and if the benefits of Prime Time justify the costs. As Table 9 indicates, there is a remarkable convergence of views between teachers with and without Prime Time assistants. A vast majority of teachers (86-91%) agreed "definitely " or "somewhat" that the costs of Prime Time are justified. That said, almost one in five teachers believe that the monies allocated to Prime Time could be better spent (Table 10). When asked to indicate alternative funding priorities, about 18% of teachers ranked reducing class size in other primary grades as a funding target, and nearly 5% suggested full-day kindergarten (Table 11).

Discussion

The present data is the first examination of the Prime Time initiative using a statewide representative sample of teachers as respondents. Five questions were addressed. First, we wanted to determine whether teachers who were assigned Prime Time aides differed from teachers without Prime Time aides in terms of training, teaching experience, and professional development. Second, we wanted to know the educational background of Prime Time aides. Third, we attempted to determine the extent of participation of Prime Time aides in classroom activities, their range of typical duties, and how often they were present in the classroom during the instructional day. Our findings with respect to these questions can be summarized as follows:

- Classrooms with larger enrollment and average attendance tend to have Prime Time aides assigned to them. This is not unexpected, insofar as Prime Time eligibility is linked to class size. The presence of non-Prime Time aides is not directly tied to class size.

- Teachers with Prime Time aides did not differ from teachers without Prime Time aides in years of teaching experience, in educational attainments, or in participation in professional development activities. Of course, it is possible that teachers without Prime Time aides had other kinds of aides assigned to their classrooms.

- A plurality of Prime Time aides (about 40%) hold only the high school diploma. However, nearly 20% of aides hold a university degree, and another 20% have taken some university classes. Most aides are not former teachers, and only 7% hold a teacher license.

- Most teachers (80%) who are assigned a Prime Time aide have the aide present in their classroom every day of the week. However, most aides are shared with other classrooms. On average, a Prime Time aide is present in a given classroom about 3.4 hours a day, although a quarter of Prime Time classrooms have an aide less than 80 minutes a day. Hence, although it is encouraging that there is a daily Prime Time presence in eligible classrooms, it is a concern that the aide is not more available, at least in some classrooms.

- Prime Time aides are typically asked to tutor individual children or to participate in small group activities. About 14% are asked to perform routine clerical duties. Aides are rarely called upon to discipline students, attend to classroom decoration, serve as a liaison with parents, or organize recreational activities. Hence, it would appear that teachers typically use Prime Time aides for broadly appropriate instructional purposes.

Our fourth question concerned the extent to which the presence of aides in the classroom influenced teachers' grouping practices. Our results can be summarized in the following way:

- The presence of an aide is associated with less whole class instruction, and more use of smaller grouping structures, than in classrooms without aides.

- The presence of two assistants in a class appears to be maximally effective in influencing the classroom grouping structures. Classrooms with two assistants, for example, tended to use smaller groupings of five or more pupils than classrooms without assistants, and they tended to use less whole class instruction as well.

- Classrooms with multiple assistants also tended to use more grouping strategies for language arts and mathematics than classrooms without aides or classrooms with just a Prime Time aide.

These findings are notable because they document the salutary effect that aides can have on the grouping practices of teachers. It is widely assumed that alteration in teacher instructional practices (such as grouping) is the mechanism that links reduced class size to better academic outcomes in children. Because class sizes are reduced, teachers are free to adopt pedagogical strategies that maximize student learning. Unfortunately, previous research on the effects of "class size reduction" is often hard-pressed to document a change in teacher behavior as a result of having a reduced enrollment class. Yet the present findings suggest that the critical variable in this regard may not be class size, *per se*, but whether teachers have instructional assistants, regardless of actual class size. Indeed, most teachers with aides reported that they adjust their instructional strategies to capitalize on the more favorable pupil-teacher ratio that results from having an instructional assistant. Hence, perhaps the "Prime Time strategy" of supplementing teachers with aides may be as promising a way to encourage pedagogical best practice as simply reducing class size.

Does the presence of aides also influence the use of instructional practices other than grouping? Our findings on this question can be summarized as follows:

- Teachers with both Prime Time and non-Prime Time aides spent less time disciplining students, grading student work, and general planning for lessons.

- Teachers with Prime Time aides spent more time planning for lessons than did teachers with both kinds of aides.

- Teachers with a non-Prime Time aide spent more time planning for lessons than did teachers with both kinds of aides.

- Similarly, teachers with a Prime Time aide spend more time planning with the aide than do teachers with a non-Prime Time aide. Teachers with both kinds of aides spend more time planning with the aides than do teachers with a non-Prime Time aide.

- Teachers with both types of aides use more small group/learning centers than do teachers without aides, or teachers with just a Prime Time aide.

- More technology is used in classrooms with an aide.

Once again, the fact that teachers with aides use more small group/learning centers and more educational technology in the classroom than teachers without aides supports the general claim that the presence of aides in the classroom can have a salutary influence on instructional practices. Moreover, the presence of aides would also appear to diffuse discipline problems in the classroom, probably because the presence of an aide(s) facilitates greater adult monitoring of student behavior. More grading is also reduced in classrooms with aides. Having an aide is also associated with more general planning for lessons. What's more, our data also shows that *planning with assistants* is more likely to occur if a teacher has a Prime Time aide than a non-Prime Time aide. Moreover, planning with assistants is more likely if a teacher has both kinds of aides that if a teacher has a non-Prime Time aide. Clearly, then, teacher planning is associated with the presence of Prime Time assistants.

Finally, our data shows strong support among teachers for the Prime Time initiative.

- Most teachers report that their teaching is improved when they have an aide.
- Most teachers report that having an aide has required them to "greatly" or "moderately" alter their instructional practices.
- Approximately 90% of teachers assert that the costs associated with Prime Time are justified.
- But 20% of teachers suggest that the monies could be better spent on other priorities, such as full day kindergarten and lower class size in other primary grades.

Conclusion and Caveat

The present results offer encouraging support for the Prime Time strategy. The presence of aides in the classroom is associated with teacher grouping and instructional practices that are presumably associated with academic achievement in children. But two important caveats must be noted. First, although this data documents the fact that teachers appear to alter their

instructional practices when they have aides, this data is unable to show that these practices are in fact associated with academic outcomes. Second, these data are the result of teacher self-report. There is not always close agreement between what teachers say they do in a classroom and what they are observed to do by others. Consequently, this report must be supplemented by studies that link pupil-teacher ratio more directly to student outcomes, and by observational studies of teacher practices when they do and do not have aides. Project Prime Time is currently pursuing both kinds of studies.

References

Finn, J.D. (1 998). *Class size and students at risk: What is known? What is next?*. Washington, D.C. :U.S. Department of Education.

Finn, J.D., Fulton, D., Zaharias, J. & Nye, B.A. (1989). Carry-over effects of small classes *Peabody Journal of Education, 67*, 75-84.

Finn, J.D. & Achilles, C.M. (1990). Answers and questions about class size: A statewide experiment. *American Educational Research Journal, 27*, 557-577.

Kickbusch, K. (1990) Class sizes. *Educational Issues Series*. Wisconsin Educational Association Council. http//www.weac.org/resources/may96/classsize.htm

Mitchell, D.E. & Beach, S.A. (1990). How changing class size affects classrooms and students. *Policy Briefs* (No. 12). Far West Laboratory. Office of Educational Research and Development, U.S. Department of Education.

Pate-Bain, H. & Achilles, C.M. (1986). Interesting developments on class size. *Phi Beta Kappan, 67*, 662-665.

Robinson, G.G. (1990). Synthesis of research on the effects of class size. *Educational Leadership, 47*, 80-90/

Stasz, C. & Stecher, B.M. (2000). Teaching mathematics and language arts in reduced size and non-reduced size classrooms. *Educational Evaluation and Policy Analysis, 22*, 313-329.

Varble, M.E. (1990). Smaller class size = higher achievement scores? *Contemporary Education, 62*, 38-45.

Table 1
Means and Standard Deviations for Enrollment and Average Attendance by Classrooms with Different Types of Aides

	Enrollment		Attendance	
Type of aide (Number of Classrooms)	Mean	Standard Deviation	Mean	Standard Deviation
No aide (N = 131)	20.18^{134}	5.38	19.63^{134}	5.08
Prime Time aide only (N = 109)	23.66^{34}	5.16	22.91^{34}	4.81
Non-Prime Time aide only (N = 220)	21.51^{2}	5.81	20.89^{2}	5.72
both types of aides (N = 212)	25.16^{12}	6.61	24.35^{12}	6.41

Note. Enrollment means with a common superscript are significantly different: ^{1234} $p < .05$.
Note. Attendance means with a common superscript are significantly different: ^{1234} $p < .05$.

Table 2
Means and Standard Deviations for Enrollment and Average Attendance by Classrooms with Different Numbers of Aides

	Enrollment		Attendance	
Number of aides (Number of Classrooms)	Mean	Standard Deviation	Mean	Standard Deviation
No aides (N = 131)	20.18^{1234}	5.38	19.63^{1234}	5.08
One aide (N = 220)	22.66^{4}	5.50	21.93^{4}	5.30
Two aides (N = 169)	24.11^{3}	7.01	23.43^{3}	6.78
Three aides (N = 76)	23.17^{2}	5.44	22.42^{2}	5.31
More than three aides (N = 66)	24.05^{1}	6.44	23.23^{1}	6.15

Note. Enrollment means with a common superscript are significantly different: ^{1234} $p < .05$.
Note. Attendance means with a common superscript are significantly different: ^{1234} $p < .05$.

Table 3
Characteristics of Teachers in Prime Time and Regular Classrooms

Training and Teaching Background Characteristics	Teachers	
	Classrooms With Prime Time Aides	Regular Classrooms
Total years teaching experience	17.56 (sd = 9.82)	18.45 (sd = 9.76)
Teaching experience at current grade level	11.56 (sd = 9.09)	10.93 (sd = 8.71)
Teaching experience at primary level	15.31 (sd = 9.72)	15.66 (sd = 9.59)
Percent with masters degree	78% (N = 252)	77.8% (N = 275)
Percent with kindergarten endorsement	34.7% (N = 112)	34.2% (N = 121)
Percent with reading endorsement	14.2% (N = 46)	15.8% (N = 56)
Percent with mathematics endorsement	6.8% (N = 22)	2.8% (N = 10)
Percent with gifted studies endorsement	3.4% (N = 11)	1.7% (N = 6)
Percent who have attended a Prime Time workshop	31.6% (N = 102)	28.9% (N = 99)
Percent who have attended a workshop on early education	85.8% (N = 277)	80.2% (N = 284)

Table 4
Educational Background of Prime Time Instructional Assistants

Educational Background	Percent	Number
High school graduate only	41.2	133
Associates degree	4.0	13
Currently attending college	.9	3
Some college coursework	14.6	47
Bachelors degree, education	11.1	36
Bachelors degree, other	10.5	34

Table 5
Typical Duties of Prime Time Instructional Assistants

	Rank of							
	1	2	3	4	5	6	>6	No Rank
Tutor individual students	48%	24.1%	11.1%	3.1%	2.8%	2.9%	.6%	5.0%
Participate in small group instruction	25.7%	38.7%	9.9%	5.0%	3.7%	1.2%	1.5%	11.1%
Liaison with parents	-----	.3%	.3%	.9%	-----	2.2%	12.3%	81.1%
Maintain bulletin boards/decorate	.3%	4.3%	3.7%	9.6%	12.7%	8.0%	17.2%	40.9%
Monitor learning needs of students	7.4%	1%	26.6%	9.0%	4.3%	2.8%	3.9%	31.9%
Routine clerical duties	14.2%	7.4%	17.6%	17.3%	12.7%	6.2%	5.6%	15.5%
Direct instruction of subjects	1.5%	5.3%	3.1%	5.0%	2.5%	3.4%	8.3%	68.1%
Discipline students	.6%	2.2%	3.1%	7.1%	6.2%	4.3%	14.1%	58.8%
Collect/organize materials	.6%	4.3%	6.2%	11.1%	9.9%	7.7%	11.1%	45.8%
Maintain grade book	.3%	1.2%	2.2%	6%	6%	3.7%	10.2%	78.3%
Organize recreation activities	.3%	.6%	1.2%	.9%	1.5%	1.2%	12.4%	78.9%
Escort children	.6%	1.5%	3.7%	9.6%	12.1%	10.2%	16.2%	42.4%

Table 6
Means and Standard Deviations for Time Using Instructional Grouping Practices by Type of Aides and Subject Area

Grouping	Aide Type: All Subjects							
	No Aide		Prime Time Aide		Non-Prime Time Aide		Prime Time and Non-Prime Time Aides	
	Mean	S. D.	Mean	S. D.	Mean	S. D.	Mean	S. D.
Whole class	203.64[1]	76.25	191.06	83.51	182.60	78.63	178.23[1]	76.77
Five or more	34.42[1]	46.73	42.27	51.52	44.63	44.17	52.06[1]	44.47
Two to four	29.88	32.20	298.74	35.63	36.31	32.45	30.39	34.20
Individual	33.67	31.60	28.73	26.73	35.02	29.13	28.69	23.54

Note. Aide Type means that share a common superscript are significantly different: [1] $p < .05$.

Grouping	Aide Type: Language Arts							
	No Aide		Prime Time Aide		Non- Prime Time Aide		Prime Time and Non-Prime Time Aides	
	Mean	S. D.	Mean	S. D.	Mean	S. D.	Mean	S. D.
Whole class	84.90	43.92	81.86	48.30	78.00	70.57	81.86	91.68
Five or more	15.42[1]	20.95	18.57[2]	22.93	29.77	66.27	37.44[12]	89.18
Two to four	14.96	20.94	14.23	26.97	24.76	64.03	26.28	89.05
Individual	15.45	18.70	12.22	14.00	21.45	61.85	26.76	87.24

Note. Aide Type means that share a common superscript are significantly different: [1] $p < .05$, [2] $p < .07$.

Grouping	Aide Type: Mathematics							
	No Aide		Prime Time Aide		Non-Prime Time Aide		Prime Time and Non-Prime Time Aides	
	Mean	S. D.	Mean	S. D.	Mean	S. D.	Mean	S. D.
Whole class	44.99	2.02	45.72	2.229	43.15	1.57	41.50	1.60
Five or more	4.24[12]	1.07	5.29	1.18	7.61[2]	.834	7.99[1]	.850
Two to four	6.06	1.14	5.00[3]	1.25	8.71[3]	.887	8.30	.904
Individual	9.84	.873	7.46	.961	10.22	.679	9.11	693

Note. Aide Type means that share a common superscript are significantly different: [1] $p < .05$, [2] $p < .06$, [3] $p < .085$.

Table 7
Means and Standard Deviations for Time Using Instructional Grouping Practices for All Subjects by Number of Aides

Number of Aides	Instructional Grouping							
	Whole Class		Five or More Students		Two to Four Students		Individual	
	Mean	S. D.	Mean	S. D.	Mean	S. D.	Mean	S. D.
No aides	203.64[1]	7.03	32.15[1]	4.06	29.54	3.03	33.67	2.51
One aide	190.93	5.36	43.16	3.09	31.33	2.31	32.62	1.91
Two aides	177.81[1]	6.23	51.11[1]	3.59	31.61	2.68	27.71	2.22
Three aides	178.51	9.07	49.59	5.24	32.60	3.90	31.35	3.24
More than three aides	174.76	9.76	47.69	5.59	38.46	4.16	35.80	3.45

Note. Instructional Grouping means that share a common superscript are significantly different: [1] $p < .05$

Table 8
Means and Standard Deviations for Time Engaged in Various Teaching Practices by Type of Aides

Instructional Practices	Aide Type							
	No Aide		Prime Time Aide		Non-Prime Time Aide		Prime Time and Non-Prime Time Aides	
	Mean	S. D.	Mean	S. D.	Mean	S. D.	Mean	S. D.
Discipline	1.59	.088	1.87[1]	.092	1.75	.065	1.60[1]	.067
Planning	2.90	.105	3.00[2]	.110	3.00[3]	.078	2.64[23]	.080
Class set up	2.19	.091	2.15	.095	2.27	.067	2.19	.069
Centers	1.48	.080	1.57	.084	1.62	.059	1.61	.061
Grading	3.36[4]	.119	3.35[4]	.124	3.21	.088	2.91[4]	.090
Paperwork	2.69	.116	2.95	.121	2.70	.085	2.62	.088

Note. Aide Type means that share a common superscript are significantly different: [1] $p < .07$, [234] $p < .05$.

Instructional Practices	Aide Type							
	No Aide		Prime Time Aide		Non-Prime Time Aide		Prime Time and Non-Prime Time Aides	
	Mean	S. D.	Mean	S. D.	Mean	S.D.	Mean	S. D.
Manipulatives	2.16[1]	.099	2.21	.105	2.32	.074	2.51[1]	.077
Workbooks	2.58	.105	2.62[2]	.111	2.28[2]	.078	2.43	.082
Technology	1.79[1]	.092	1.98	.097	2.14[1]	.069	1.98	.072
Readers	2.36	.097	2.34	.103	2.27	.073	2.21	.076
Circle activity	1.65	.088	1.73	.093	1.85	.066	1.84	.069

Note. Aide Type means that share a common superscript are significantly different: [1] $p < .05$, [2] $p < .06$.

Instructional Practices	Aide Type							
	No Aide		Prime Time Aide		Non-Prime Time Aide		Prime Time and Non-Prime Time Aides	
	Mean	S. D.	Mean	S. D.	Mean	S. D.	Mean	S. D.
Whole class	4.05	.102	4.25	.109	4.09	.077	4.14	.078
Integrated	3.16	.12	3.25	.129	3.23	.090	3.37	.092
Direct	3.21	.118	3.55	.127	3.27	.089	3.33	.091
Small group/ centers	2.35[13]	.112	2.34[24]	.121	2.75[34]	.085	2.84[12]	.087

Note. Aide Type means that share a common superscript are significantly different: [1234] $p < .05$.

Table 9
Is the Money Spent on Prime Time Justified?

	Teachers With a Prime Time Aide	Teachers Without a Prime Time Aide
Yes, definitely	73.7%	68.9%
Yes, somewhat	17.0%	17.5%
Not sure	3.1%	8.5%
Probably not	1.9%	2.0%
Definitely not	.6%	.6%

Table 10
Could the Money Devoted to Prime Time Be Better Spent?

	Teachers With a Prime Time Aide	Teachers Without a Prime Time Aide
Yes	18.9%	19.2%
No	59.1%	48.3%
Do not know	16.1%	29.4%

Table 11
Programs that Money From Prime Time Could Be Better Spent On

	Rank of								
	1	1.5	2	2.5	3	4	5	6	No Rank
Full day kindergarten	4.8%	.9%	4.7%	.1%	4.7%	3.1%	1.2%	.1%	48.2%
Publicly funded preschool	2.3%	.3%	1.3%	.1%	1.8%	4.4%	3.1%	.6%	53.9%
Lower class size in primary grades	17.5%	5.7%	5.4%	.3%	2.6%	4%	.1%	.2%	35.8%
Lower class size for other grades	2.5%	4.7%	10.0%	.3%	4.6%	2.6%	.7%	.1%	42.6%
Professional development	-----	.6%	1.2%	.3%	3.8%	2.8%	6.2%	.4%	52.6%
Other	.9%	.4%	.3%	-----	.7%	4%	.3%	.3%	64.5%